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Entitlement Gaps and Vulnerability in the New Economy

Marion E. Jones and Maximilian Schmeiser

Abstract

Global poverty is primarily concentrated within groups who depend upon their labour, as opposed to capital of any form, for the provision of income. The emergence of a global economy – Globalization – and the spread of neo-liberal ideology and policies, which forged new lines of social cleavage and widened the digital divide, has further entrenched poverty within existing vulnerable populations, as well as exposing new populations to economic and social vulnerability. This expansion of vulnerability results from a shortfall in entitlement: Entitlement not only to the ability to earn income, but also the ability (inability) to translate that income into material well-being. The formation of an inclusive and just society necessitates closing this entitlement gap. To close the gap, we must understand the dynamics of socio-economic exclusion in this climate, and the livelihood coping strategies of the marginalized before effective policy formulation can take place.

Introduction

Throughout the world, poverty – whether urban or rural – is concentrated among those who principally rely upon their own labour for the generation of income with few or no other productive factors. Among landless, capital-less labourers, it is women and their children who experience the highest incidence of, and the greatest affects of, poverty and entitlement failure (Basu, 1999; Jacobson & Wadley, 1986). We are

Marion Jones, Economics, University of Regina, Regina, SK, S4S 0A2
Tel (306) 585-4463 Fax (306) 585-4815 marion.jones@uregina.ca; Max
Schmeiser: Department of Policy Analysis and Management, Cornell
University, Ithaca, NY, USA mds67@cornell.edu. We would like to
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interested in understanding the nature of this poverty in light of globalization, neo-liberalism and the new economy¹, and what can be done to raise their material well-being, to alleviate their poverty and to create vibrant sustainable communities. To take this examination one step farther, we need to abandon the traditional measures of poverty, and instead look at entitlement gaps, and their underlying lines of social cleavage, as they impinge upon people's ability or inability to both earn income and command resources with those incomes.

The Role of the Digital Divide and the New Economy

Global society has so thoroughly embraced Information and Communication Technologies (ICTs) that effective participation in society now requires literacy in the use of ICTs. However, the ability to acquire ICT literacy is not universal, but is instead limited by one's status with respect to income, education, geography, family situation, and socio-cultural characteristics. Those unable to acquire ICT literacy are marginalized as they cannot fully participate in modern society. Most apparent is the divide in ICT literacy that is occurring between LMYCs and HYCs. However, the technical gap is also growing within nations, both LMYCs and HYCs, creating groups of information "haves" and "have nots". This growing 'digital divide' has resulted in the marginalization of those groups without ICT access or literacy. Further, the great financial and time expense necessary to achieve ICT literacy has put at risk of marginalization groups which were previously secure.

The global growth in ICTs use and its integration into society was fuelled in no small part by growth in international trade and commerce.

¹ The new economy is a product of the twin global economic climatic factors neo-liberalism and globalization. It is firmly imbedded in ideas of small government and free trade (at least free access to the markets of developing countries for the exports of high income countries). The vested interests of the industrialized nations have meant that the entrenchment of intellectual property rights in multilateral trade agreements no longer permits the sale of computer software and other technology goods at differential prices to better reflect the purchasing power of local incomes – greatly eroding the access of even the upper middle class to technology in low and middle income nations – and ensuring that generic versions of crucial pharmaceuticals are no longer available in low and middle income countries, and further that there are no funds available for the development of a domestic pharmaceuticals industry in these countries which can serve the epidemiological needs of the poor.

Advancements in ICTs have allowed for increased gains from international trade, as well as allowing multinational corporations to operate efficiently despite geographical dispersion. Modern communication technology allows for the separation of human capital intensive operations, and labour intensive production activities. Thus firms can achieve cost savings through the outsourcing of production to areas with substantially lower labour costs, while maintaining near total control over product development and design. In some cases firms can outsource research and development to countries with comparable ICT infrastructure and human capital but lower labour costs (James, 1998) reinforcing the trend towards a global assembly line. ICTs also facilitate greater trans-national inter-firm trade by allowing firms to obtain global information on prices and markets, and by hastening the placement of orders (James, 1998). Given the importance of ICT infrastructure and human capital in attracting international firms and investment, those countries which lack this infrastructure and human capital are marginalized in that they are relegated to labour intensive production. Further, even within countries which possess the requisite capital, groups and individuals are prevented from fully participating in the global economy as they lack the necessary capital (human and physical).

In conjunction with the decline in world trade barriers, the internet's reduction of entry barriers has created the potential for firms in LMICs to effectively compete with firms in HICs. Thus ideally the advancement of ICTs, particularly the internet, should encourage the convergence of world incomes (Rodriguez & Wilson, 1999). For convergence, or even competition to occur, the world's poor must first have access to ICTs. However, at present the 'digital divide' between LMICs and HICs is enormous. One measure of the extent of the digital divide, developed by Rodriguez and Wilson (1999) is to analyze the variation between countries with respect to numbers of personal computers, Internet hosts, fax machines, mobile phones, and televisions to assess level of technological advancement. The results are staggering as OECD nations possess twenty one times as many fax machines, thirty four times as many computers, sixteen times as many telephone mainlines, and twenty seven times as many internet hosts as Sub-Saharan African nations. The results for South Asian nations are even worse with OECD nations possessing sixteen times as many fax machines, forty four times as many computers, thirty nine times as many telephone mainlines, and three hundred times as many internet hosts (Rodriguez & Wilson, 1999, Table 1). The 'digital divide' between rich and poor countries also appears to be growing. Between 1994 and 1996, using the Rodriguez et al. measure, the growth rate of ICTs in high income countries was twenty percent, while that of low and middle income countries was sixteen percent. If LMICs

continue to lag behind HYCs in technological growth, the income gap between these two groups will continue to increase.

The 'digital divide' is not restricted to comparisons between LMYCs and HYCs, but is alive and well within individual nations. The United States, sometimes considered the most developed and technologically advanced nation, has a strong and widening 'digital divide'. In its 1999 report "Falling Through the Net: Defining the Digital Divide" the U.S. Department of Commerce examined the extent of the divide within the United States. The report concluded that despite the proliferation of personal computers and the internet, as well as their increasing importance for "economic success and personal advancement" the digital divide was growing. The report found that wealthy urban households were twenty times more likely to have internet access than poor rural households. This internet access divide between rich and poor is also growing with an increase of twenty nine percent since 1997. Race plays a strong factor in the divide with Black and Hispanic households only forty percent as likely as White households to have internet access, a five percentage point increase from 1997.

The implication of this report is that the digital revolution is creating additional barriers to economic and personal success for already disadvantaged groups. The ability of those in marginalized groups to advance themselves is undermined as they lack the money and time necessary to acquire the tools and skills to participate in the new economy. The catch is that without these skills and tools individuals are unable to move into the advantaged category. Moreover, the lack of computers and internet access within marginalized households disadvantages the next generation, as they are denied the opportunity to acquire the requisite skills. The result is a permanent division of "haves" and "have nots" where the haves enjoy access to the best schools, jobs, and incomes while the have nots enjoy limited employment, income and educational opportunities. This reinforces the importance of the role of publicly funded education in providing access to and instruction in the internet and other technologies to help break down this divide. The downside is that all of our experience with text-based learning suggests that the presence of 'text' (in this instance including the digitized text) in a home is the best predictor of student success. So ICT in all schools is a good start, necessary, but not sufficient to achieve a closing of the digital divide.

The negative implications of the 'digital divide' and the new economy are even greater in the context of the marginalized individuals within LMYCs. The global demand for ICT proficient individuals has led to convergence of wages for IT professionals. In cases where competitive wages cannot be obtained, the high mobility of skilled individuals allows

them to leave LMYCs in favour of high paying jobs in HYCs. The wage convergence for skilled workers in developing nations has unfortunately failed to trickle down to unskilled labour, increasing national income gaps. Further, the mobility of skilled labour results in the emigration of ICT proficient individuals from LMYCs to HYCs, widening the digital divide. The disadvantaged people of LMYCs are therefore further marginalized by the increase in their relative poverty, and their nations' loss of those individuals who could construct the ICT infrastructure and diffuse ICT skills. We also see the development of enclave economies within LMYCs around ICT, look at the blooming of the technology sector in Bangalore in India or Jinan in China for example. But like the EPZ and SEZs of manufacturing industry of an earlier era, these function as isolated islands of modernity with strong links to the rest of the digital world, and few links to the rest of the domestic economy – undermining technology transfer, and the multiplier. So, like capital intensive manufacturing before it, ICT produces narrow income benefits for the few, with few employment and income benefits for the many. Physical capital has been replaced by ICT and human capital.

In developed nations, the increased value of those with ICT skills has also lead to wage increases. With globalization and the increased reliance on outsourcing of labour intensive activities to LMYCs for cost savings, the unskilled labourers of HYCs have suffered both increased unemployment and declining wages (Streeten, 1998). As a result both their relative and absolute poverty have increased. With the strong correlation between income and ICT literacy these adverse effects on unskilled labourers in HYCs will likely exacerbate the 'digital divide'. While similar process in low and middle income countries mean that this same dynamic holds, as outlined above.

Globalization and Neoliberalism

As the processes of globalization and neo-liberalism increasingly take hold, there is a considerable risk that the poor will be left behind as the State is forced to retreat from its proactive roles in social security provision, education and redistribution (Chanda, 2002; Shurmer-Smith 2000). Many of these responsibilities are devolved onto local governments and civil society organizations. The finances for such projects must therefore also come from within the community itself. Now, more than ever, an examination of the mechanisms for creating prosperity through both market and non-market, state and para-statal mechanisms is necessary.

Williamson (1996) would have us believe that globalization has led to increased inequality in OECD economies, and greater income equality

in low and middle income countries. However, the spread of technology – and the place of technology as the new religion in many modern societies (Postman, 1993 p. 58) – has meant that far from sensing an improvement in their relative conditions on a national level, people in low and middle income countries are increasingly aware of the enormous gulf between incomes, and the material well-being that they may command, in low and middle income countries (LMYCs) compared to their global neighbours in high income countries (HYCs). Further, it has been well documented that rising income inequality has accompanied rapid economic growth in many of the countries of East and Southeast Asia like China, South Korea, Malaysia and Indonesia, and also accompanied the process of de-industrialization and the retreat of the State in countries undergoing structural adjustment and other neo-liberal reform processes in Latin America and Sub-Saharan Africa in particular, but throughout the world since the currency crises of 1997.

A growing divide between the haves and the have-nots has left increasing numbers in the Third World in dire poverty, living on less than a dollar a day. Despite repeated promises of poverty reduction made over the last decade of the twentieth century, the actual number of people living in poverty has actually increased by almost 100 million. (Stiglitz, 2001, p. 5)

Indeed the only source of convergence is between the super elites of any given country. These processes are being fuelled by globalization, neo-liberalism and the new economy in general, and the digital divide in particular. “ Looking at the ‘terms of trade’ ...after the last trade agreement in 1995 (the eighth), the net effect was to lower the prices some of the poorest countries in the world received [for their exports] relative to what they paid for their imports.” (Stiglitz, 2001, p. 7) Making some of the poorest countries in the world worse off.

To be sure the inclusion of intellectual property rights in both GATT and WTO agreements has meant that many in low and middle income countries have lost access to technology and pharmaceuticals. For technology this is because differential pricing to reflect purchasing power parity is no longer permitted on technology goods. The prohibition on the production of generic versions of pharmaceuticals has increased drug prices in LMYCs and virtually eliminated a domestic drug industry in these countries, where some research and development of drugs suited to the diseases of the local country, such as malaria, were being pursued.

Within the literature, we see three main trends dealing with globalization, neo-liberalism and vulnerability: blame the victim; blame

the system; blame capitalist exploitation (cf. Quark, 2003). The real question here is not who or what is to blame, we could sit around for an eternity trying to apportion blame. The real question is: How do we help the vulnerable to bridge the entitlement gap?

Entitlement Gaps

Our first task must be to define what we mean by an entitlement gap and how we propose to measure it. Our second task will be to illustrate the potential use of the concept in addressing social policy formulation, through looking at the impact of lines of social cleavage and the digital divide on entitlement for individuals. The entitlement gap is created quite simply, in theoretical terms, by marrying the concepts of a poverty gap index and Sen's (1992) concept of entitlement. Through such a union we may examine not merely the inability of people to earn income under the new economy (both new and old sources of vulnerability) but also their ability to turn this into material well-being or functioning. As a result the obvious concept of entitlement gaps – capturing both the shortfalls of income and the shortfalls in the translation of this income into consumption / functioning / material well-being – is necessary for this analysis. Like a poverty gap, the entitlement gap will measure the extent to which individuals fall short of a given level of material well-being or functioning. This will allow us to understand how big the problem is. The sources of this entitlement failure will be guided by the lines of social cleavage and the digital divide. In order that we may turn this analysis to policy prescriptions, it will be necessary to examine directly this multiplicity of vulnerabilities. Are vulnerabilities merely additive or are they multiplicative? Does the most important factor take the form of a binding constraint? Does the nature of any binding constraint vary from individual to individual and society to society dependent upon the constellation of vulnerabilities to which they are subject?

Very much like any poverty measure, the real controversy comes in setting the level of entitlement that is appropriate. Is there an absolute level of entitlement which all people should have, or is the standard relative? Does this vary from place to place – social, cultural, economic geographic contexts? Can we think of one standard of entitlement that is meaningful on a global scale? What variables can be used to measure this standard? Obviously the theoretical underpinnings of entitlement dictate the use of interpersonal data for the measurement of entitlement and social cleavages in different socio-economic and geographic contexts. Such data sets are very hard to come by at the international level. So, of necessity, we have done some empirical testing of entitlement and social

cleavage from two Canadian data sets to which we had access. The first is the 2001 Barriers to Employment survey conducted by Prairie Research Associates for the Department of Community Resources and Employment of the Saskatchewan government examining welfare recipients and former welfare recipients in Regina and Yorkton². From this data set we employed use of the food bank as a proxy for entitlement failure, and a list of personal characteristics to be listed below in our probit model. The second data set is the Canadian Community Health Survey, also from 2001, which examined a sizable sample of people from across Canada³. From this survey, we employed a derived food insecurity variable as the proxy for entitlement, and a long list of personal and socio-economic variables on the right hand side of the probit equation.

Using data gathered in the 2001 Saskatchewan Barriers to Employment survey, we estimate a probit model of entitlement failure. The use of a food bank in the past twelve months is used as the dependent variable, with a variety of social and economic measures used to gauge entitlement failure. Food bank use was selected on the basis that nutrition is a fundamental need and therefore those who must depend on the food bank implicitly suffer an entitlement failure. The model results indicate that entitlement failure follows from a multiplicity of gaps in social and human capital, as well as health and other concerns, converging additively against an individual.

$$P(\text{FoodBankUse}) = .11\text{Addiction} + .15\text{VisibleMin.} + .2\text{Aboriginal} + .1\text{UnsafeHouse} + .05\text{child}*\#\text{child} + .06\text{Female} - .16\text{Employed} - .01\text{Education}*\#\text{levelsEducation} - .15\text{Accessvehicle}$$

Addictions problems appear to be among the most significant indicator of entitlement failure. Those with either alcohol or drug addictions are eleven percent more likely than the baseline to make use of the food bank; our measure of entitlement failure. Being a visible minority, particularly an aboriginal, resulted in a fifteen percent increase in the likelihood of an entitlement failure, with a twenty percent increase for aboriginals. This result strongly indicates a prevalence of a general social discrimination against visible minorities. Moreover, the aboriginal result suggests that indigenous peoples face added cultural and

² We would like to express our deep gratitude to the Department for the use of this data set.

³ We are very grateful to Statistics Canada and their Data Liberation Initiative for the use of this data set, and the wonderful assistance of Marilyn Andrews, the University of Regina Data Librarian and Guru for her assistance in obtaining the data set.

discrimination based barriers to entitlement. The feeling that one is not safe in one's current dwelling was associated with a ten percent increase in the likelihood of suffering entitlement failure. This is an intuitive result, as this question serves as a proxy for the general state of one's shelter. Given the essential nature of shelter provision, one can logically conclude that those for whom shelter provision is a difficulty are suffering an entitlement failure. Similarly, those who can only obtain marginal shelter (where safety, privacy, and heating are a concern) likely also suffer from an entitlement failure.

The number of children an individual cared for was strongly associated with entitlement failure. Each additional child resulted in more than a five percent increase in the likelihood of having to use the food bank. With individuals in the survey having as many as six children, this is potentially the most significant indicator of the likelihood of entitlement failure. Moreover, being female increased the likelihood of entitlement failure by nearly six percent. In light of our findings on children, a woman's increased likelihood of entitlement failure results primarily from her childcare responsibilities; particularly when the prevalence of single mothers in this sample is factored in.

Employment and access to a social support network were the most significant factors in decreasing the likelihood of entitlement failure. Being employed decreased the likelihood of entitlement failure by nearly sixteen percent. This likely results from a combination of both the economic and social benefits associated with employment. Having access to a vehicle if needed was associated with a fifteen percent decline in the likelihood of entitlement failure. This strong impact is unsurprising, given that the ability to borrow a vehicle from a friend or relative is strongly indicative of the nature of the social support network available to an individual. The importance of an individual's social support network in staving off entitlement failure cannot be understated. Having access to others who can support you financially and emotionally, and who can provide childcare or other favours has an obvious reduction on the likelihood of entitlement failure.

Level of education appeared to have a negligible impact in reducing entitlement failure. For each additional level of education obtained, the likelihood of entitlement failure decreased by only 1 percent. This result is both intuitively and empirically contradictory. However, the limited impact of education in this situation likely resulted from the linear nature of the model; in that obtaining a graduate degree could not add more to the overall impact than completing high school. Moreover, one must consider that our sample was taken from current or former social assistance recipients among whom high school completion is predominantly the highest level of educational attainment. What has also

become apparent is that those in this sample who do possess higher education likely have the value of this education diminished due to mental or physical disabilities⁴.

In conjunction with the probit analysis of the 2001 Barriers to Employment Survey (BES), an analysis was conducted on the much richer Canadian Community Health Survey (CCHS) 2000-2001. The objective of both analyses was to determine the relative impact of numerous variables on 'entitlement failure'. The CCHS provided a much larger sample size, a more general sample (the BES included only current or former welfare recipients) and significantly more (and somewhat different) variables with which to work than did the BES. In both the BES and the CCHS food insecurity was used as the dependent variable. In the BES the specific dependent variable was food bank usage, whereas in the CCHS a derived food insecurity variable was employed.

$$P(\text{Food Insecurity}) = -.011\text{Sex} -.002\text{Worked Past 12Months} +.008\text{Has a Chronic Condition} -.02\text{Number of Chronic Conditions} +.009\text{Participate in Daily Physical Activity} -.044\text{Vision Trouble} -.016\text{Hearing Problems} +.033\text{Speech Trouble} -.024\text{Mobility Trouble} +.029\text{Dexterity Trouble} +.001\text{Cognitive Problem} -.01\text{Pain Prevent Activity} -.0002\text{Positive Social Interaction} +.0002\text{Emotional Support Network} -.0002\text{Depression Scale} +.003\text{Race} -.036\text{Highest Level Education} +.022\text{Number Persons <12 in Household} +.003\text{Full or Part time hours} -.001\text{Total Household Income}$$

Given that nearly twice as many variables were employed in the CCHS analysis than in the BES analysis, the resulting coefficients on the CCHS variables were somewhat smaller. The reduction in coefficient values results from addressing the omitted variable problem in the BES model. In many cases the aggregate variables from the BES (such as

⁴ Disability, an obvious element in determining entitlement, was omitted from the model due to problems with the disability data that became apparent in a study on the labour market attachment needs for those on social assistance. Disability is treated merely as a binary: physical disability – yes / no; mental disability – yes / no; addiction – yes / no, with no measure of the severity of the disability involved or in what ways it affected people. Indeed we discovered that in Canada, those with recognized disabilities which yielded higher social welfare payments, a disability actually reduced entitlement failure in these instances – very different from those with unrecognized disabilities where entitlement failure was increased by disability. Better data are needed.

physical disability) were broken into numerous sub-categories in the CCHS, making direct comparison difficult.

The most consistent result across analyses was the impact additional children had in increasing the probability of entitlement failure. The results of the CCHS analysis indicate that each additional child in a household increases the probability of food insecurity by over two percent. Though this result is significantly less than the five percent impact found in the BES analysis, it is still one of the greatest determinants of entitlement failure.

As expected, when the analysis was extended to the general population, the importance of education in reducing entitlement failure increased considerably. In contrast to the one percent reduction in the probability of entitlement failure for each additional level of education obtained found in the BES analysis, the results of the CCHS analysis indicate that each additional level of education reduces entitlement failure by nearly four percent. Despite this increase, it is likely that education has an even more substantial impact, which is again not being captured by the linear nature of the model and the coding of the education data. Higher education reduces entitlement failure in a multiplicity of ways. Beyond its use as a signalling device to employers, thereby increasing employment, education provides valuable workplace skills as well as expands ones social awareness and social support network. Thus education yields higher employment and higher wages, as well as an essential social support network which can be called on in times of distress. Education therefore embodies the factors which have been identified as crucial to avoiding entitlement failure.

The presence of a disability or chronic condition increased the probability of entitlement failure by only one percent in the extended model. This relatively low result is likely caused by the extended categorization of disabilities and chronic conditions to the point that the various impacts cancel each other out. Moreover, many of the disabilities examined in this analysis are not generally recognized as such (vision, hearing) and no financial remuneration or work place allowances are made for those who suffer such disabilities. Of the sub-categories of disabilities, speech and dexterity problems had the most substantial impact on entitlement failure. Those suffering speech impediments increased their probability of entitlement failure by over three percent. Those individuals suffering dexterity deficiencies increased their probability of entitlement failure by three percent for each level of severity. With two levels of severity, this translates into as much as a six percent increase.

The results of the CCHS analysis appear to indicate that men are more likely than women to suffer an entitlement failure. Though the

difference between men and women is only a one percent increase in the probability of entitlement failure, this remains a counterintuitive result. One would expect that the high incidence of poverty among single mothers would be reflected in a higher probability of entitlement failure among women in general. Thus, it appears that the effect attributed to children is fully capturing the impact children have in increasing the entitlement failure of women.

Sustainable Livelihoods and Policy Formulation – Where do we go from here?

The vulnerable have a number of avenues for raising income – and ensuring the entitlement of their families. They may belong to small peasant households, they may participate in wage labour in (a) agricultural production or sideline activities, (b) manufacturing industry or (c) in the service sector – be it formal or informal; or they may run their own business, no matter how small the enterprise (Asian Development Bank, 1996). They may also be involved in a number of informal resource- or labour-sharing arrangements (Bhasin, Menon, & Khan, 1994).

We must study how social institutions and cultural practices mediate not only people's access to assets but the entitlement that arises out of that command over resources, and how they play a critical role in constraining or enhancing livelihood possibilities for those of different statuses. Livelihoods and entitlements may depend upon access to a variety of common, public, or social goods and services, as well as private resources. They may involve income, in cash or in kind. They also entail social relations and institutions—such as family and kin, community, and property rights—that facilitate or hinder making and sustaining a living.

We are interested in the various experiences of the vulnerable with existing policies and programs, and particularly with the restrictions on their participation in the economy and society more generally, and the ever-growing impacts of globalization, with a view to closing the entitlement gap and new or revised policy initiatives. To do this effectively we must come to terms with the socio-economic infrastructure—including formal and informal access to the elements of production and consumption, including finance--and the status of the vulnerable within society. Any such analysis must include an examination of the full range of production activities engaged in by the vulnerable: small peasants: agrarian, industrial and service workers; and entrepreneurs plus those who do not formally work outside the home. Most of these households instead combine activities, based on their skills and resources, to earn necessary incomes. We would argue that it is

through an understanding of these complex production and marketing activities, and in many HYCs the manipulation of the social security system, that concrete proposals for closing the entitlement gap must arise.

Conclusion

In order to devise policy to redress the digital divide, a recognition of the implications of the gulf between HYCs and LMYCs must first be made. HYCs are currently progressing to near total availability of high speed internet; giving their residents unprecedented access to a growing wealth of information and content. In contrast, many LMYCs have yet to address the absence of basic ICTs such as telephone access in rural areas. As the technological gulf widens between HYCs and LMYCs the risk of permanently technologically disadvantaging LMYCs grows. Current ICT advancement is centred wholly on the markets of North America and Europe; leading to technology which is unsuited to the needs of LMYCs. Though some technological leapfrogging for LMYCs has been made possible by these developments (the use of cellular phones instead of land lines for example), incorporation of other technologies has required concerted effort by the governments of LMYCs. Any effort to bridge the digital divide must begin by redressing the deficiencies of existing technology as they apply to the needs of the developing world.

Digital telephone exchanges are a prime example of where the ICT of HYCs was inappropriate for LMYCs. The smallest of HYC exchanges accommodates 4000 lines whereas LMYCs have need of exchanges which have only 100-200 lines. Moreover, the design of HYC exchanges is unsuited to the climate and infrastructure of rural LMYCs. In order to redress these shortfalls, in the early 1980s the Indian government sponsored a project to develop a small exchange which also suited the climate of rural India. The result was a 128 line digital exchange which could operate near indefinitely in the even the harshest of Indian climates (Pitroda, 1993).

The deficiencies of HYC ICT and the absence of ICTs in LMYCs presents its own opportunities to aid in the development of LMYCs. The Indian 128 line digital exchange provides a prime example of how overcoming an ICT challenge resulted in the creation of a valuable product which could be exported. Countries which can afford the investment in developing ICTs for the LMYC market could potentially reap significant windfalls from the proceeds of their research. Moreover, the extension of ICTs to new communities in LMYCs brings with it the prospect of new and lucrative employment in areas suffering from crippling unemployment.

Village telephone operators are an example of how extending ICTs to new areas can result in employment while at the same time improving the lives of community residents through access to ICTs. In the case of Grameen Telecom in Bangladesh, village telephone operators (poor rural women) were extended micro loans to cover their start up costs and then loaned out the use of the phone to other villagers for a fee. In many instances these women made sufficient income from their phone business to support their entire family (James, 2002). The use of targeted micro loans to help residents of developing nations extend ICTs to their neighbours is a potentially powerful tool, not only for bridging the digital divide, but for encouraging development. However, given the nature of ICTs significant support and training must be provided to these individuals; far more than is normally associated with micro loans.

The importance of the 'digital divide' in determining opportunities and outcomes at both the individual and national level should make correcting ICT inequality a tenant of any redistribution or development policy. With respect to the development of poor countries, proper weight should be given to the importance of the construction of ICT infrastructure and ICT training. Hopefully by allowing LMYCs equal access to the internet they will be better able to realize the promised gains from globalization and international trade. Within nations, governments must ensure that all their citizens have access to the tools and training required for full participation in the new economy. Recognition must be made of the fact that in many nations an individual who lacks access to a computer and the internet is unable to fully participate in society, and is thus relatively, if not absolutely poor – in a way that dates back to Adam Smith (1776).

Another root cause of entitlement failure is unequal property rights and therefore a lack of economic independence and so involvement in decision-making. Formal sector financial institutions all along have denied credit to those in poverty because they are not able to produce collateral. It further restricted their entry into small businesses to enhance family incomes (Dhaliwal, 1998). Group finance is being practiced now in a few villages (Dietrich, 1992). State sponsored programs try to cater to marginalized segments of the population, especially women, but they have not been able to dent the chronic entitlement failure among the vulnerable and the disadvantaged (Grijns, 1992). Policies like land reforms and land distribution have largely failed. For example, chronic poverty is increasingly accentuated due to droughts in Chile, India, and numerous other countries bordering the Sahara, wherein the vulnerable have to migrate to urban centres to sustain the livelihood of the family.

The information from our probit analysis suggests that in addition to the infrastructure and human capital needed surrounding the digital

divide, considerable investment in standard forms of human capital remain an important element in closing the entitlement gap. However, the results strongly suggest that human capital accumulation is not sufficient to overcome entitlement gaps. Social capital and personal security clearly emerge as dominant factors in determining the entitlement gap. Thus, bridging the digital divide in both LMYCs and HYCs requires addressing the social aspects of the problem. One cannot concern oneself with computer literacy when one fears for their person, family, or dwelling. Further, the acquisition of such skill, or any human capital, will prove fruitless without the social support required to obtain and maintain employment. Moreover, matching appropriate levels of technology to the situation and circumstance at hand appears to be very important – whether it be finding the right size and composition of telephone switching operation, or those relevant for accommodation of individual disabilities.

The next step is most obviously the collection of a data set that would permit the measurement and calculation of entitlement gaps and the sources of entitlement from a variety of countries both HYCs and LMYCs. These data sets must include a sensible measure for entitlement – such as our food insecurity / food bank use measures, and also the full range of socio-economic and personal characteristics that will permit an empirical manifestation of the capability set for the people included in the study. Only with such an informational arsenal will it be possible to make sensible policy prescriptions, and to answer the questions about the nature of entitlement gaps, and the interactions within the capability set that produces them. These are the fundamental building blocks for policy formulation in the future.

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